

# NITRIC OXIDE-PRODUCING HYDROGEL MATERIALS

## Abstract of the Invention

Hydrogels releasing or producing NO, most preferably photopolymerizable biodegradable hydrogels capable of releasing physiological amounts of NO for prolonged periods of time, are applied to sites on or in a patient in need of treatment thereof for disorders such as restenosis, thrombosis, asthma, wound healing, arthritis, penile erectile dysfunction or other conditions where NO plays a significant role. The hydrogels are typically formed of macromers, which preferably include biodegradable regions, and have bound thereto groups that are released *in situ* to elevate or otherwise modulate NO levels at the site where treatment is needed. The macromers can form a homo or hetero-dispersion or solution, which is polymerized to form a hydrogel material, that in the latter case can be a semi-interpenetrating network or interpenetrating network. Compounds to be released can be physically entrapped, covalently or ionically bound to macromer, or actually form a part of the polymeric material. The hydrogel can be formed by ionic and/or covalent crosslinking. Other active agents, including therapeutic, prophylactic, or diagnostic agents, can also be included within the polymeric material.